Claims

[c1] 1. A spread spectrum communication system receiving device for receiving a signal transmitted in a spread spectrum communication system, said receiving device, comprising:

an A/D converter for converting a received signal to digital data;

a Fourier transformer for subjecting the digital data outputted from said A/D converter to fast Fourier transform and detecting a frequency component associated with an interference signal from the obtained frequency spectrum of the received signal;

a noise eliminator for eliminating the frequency component associated with the interference signal based on a result of the detection in said Fourier transformer;

an inverse Fourier transformer for subjecting an output from said noise eliminator to inverse fast Fourier transform;

an inverse spread processor for subjecting an output from said inverse Fourier transformer to inverse spread processing; and

a demodulator for subjecting an output from said inverse spread processor to demodulation processing.

[c2]   2. The receiving device according to claim 1, wherein said noise eliminator eliminates a frequency component whose energy is larger than a certain threshold level based on the result of the detection in said Fourier transformer.

[c3]   3. The receiving device according to claim 1, wherein said noise eliminator judges whether energy of the received signal is larger than a certain threshold level for each frequency component based on the frequency spectrum of the received signal obtained in said Fourier transformer, and eliminates a frequency component whose energy is larger than the threshold level as a result of the judgment.

[c4]   4. The receiving device according to claim 1, further comprising a multiplier for multiplying the digital data outputted from said A/D converter by a window function and outputting an operation result to said Fourier transformer.

[c5]   5. The receiving device according to claim 4, wherein the window function is a window function for preventing a side lobe caused by the fast Fourier transform.

[c6]   6. The receiving device according to claim 1, wherein said spread spectrum communication system receiving

device frequency-converts the received signal in a direct conversion system.

[c7]   7. The receiving device according to claim 1, further comprising a frequency converter for frequency-converting the received signal to baseband, wherein
said A/D converter converts the frequency-converted received signal to the digital data.

[c8]   8. A spread spectrum communication system receiving device having a function of eliminating a narrow-band interference frequency component in a spread spectrum communication system from a received signal, said receiving device, comprising:
an A/D converter for frequency-converting the received signal to baseband and then converting the resultant received signal to digital data;
a digital arithmetic circuit for subjecting the received signal digitized by said A/D converter to fast Fourier transform, and detecting and eliminating single-frequency and narrow-band interference frequency components from a frequency spectrum of the resultant received signal; and
a signal processor for subjecting the received signal processed in said digital arithmetic circuit to inverse fast Fourier transform to return the received signal to time-axis data, and subjecting the time-axis data to inverse

spread processing and demodulation processing.

[c9] 9. The receiving device according to claim 8, wherein said digital arithmetic circuit is composed of a CPU or a DSP.

[c10] 10. The receiving device according to claim 8, wherein said digital arithmetic circuit comprises:
an interference signal detector for subjecting the received signal to the fast Fourier transform and detecting the single-frequency and narrow-band interference frequency components from the obtained frequency spectrum; and
a noise eliminator for eliminating the interference frequency components.